

SUPPLY CHAIN AND VALUE ANALYSIS OF LARGE CARDAMOM IN ARUNACHAL PRADESH – AN ANALYSIS

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ABSTRACT

India is the largest seller of large cardamom in the global market and the second largest producer after Nepal. The conditions prevailed in the Himalayan foothill is suitable for the growth of large cardamom. With the success of this cash cropping in Sikkim, the farming communities of Arunachal Pradesh had shifted to large cardamom farming from traditional farming with some indications of success. This paper is aimed to analyze the supply chain prevailed in the marketing of Arunachalee large cardamom and the value addition at various levels of the market.

KEYWORDS: Large Cardamom, Supply Chain, Arunachal Pradesh, Anjaw District & Value-Chain

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INTRODUCTION

Spices are highly valued and exportable produce and contribute a role model in Agri-Horti development in terms of income. Despite a cut-throat competition in foreign markets with other countries like Pakistan, Australia, Egypt, Indonesia, Tanzania, Malaysia, Spain, etc. but then India is able to occupy the top position in supplying of the spices in global markets. India's total earnings from the spices recorded at 1.24 % and altogether agriculture & allied sector could able to contribute 8.5 % of the total exports. NE region including Sikkim, Assam, Nagaland, Meghalaya, Tripura, Arunachal Pradesh, and Manipur has a huge potential in the production of various spices. The entire region is suitable for cultivation of spices such as large cardamom, turmeric, ginger, chilli, *tejpata*, coriander, garlic, cinnamon etc. (Yadav et al, 2004) ^[1]. Large Cardamom is one of the most important commercialized horticulture produces in Arunachal Pradesh which is reported to have both competitive and comparative advantages. But, the production figures for recent few years is not encouraging as was a few years back and as many a cardamom farms in lower belts of the state have been severely damaged by fungal infection and living organisms. In recent years, the global demand of large cardamom remained optimistic with rising prices which also expected to sky high in the coming years. Stakeholders remained keen to join the scrimmage that was encouraged by the consistent augmentation in price every year.

OBJECTIVES OF THE STUDY

The present research endeavor is based on the objective to identify the value-addition opportunities and actors on the supply chain of large cardamom in Arunachal Pradesh.

METHODOLOGY

The present research is based on the explorative and descriptive analysis. Thus, the Anjaw district has been designated as the area of study as it is the largest large cardamom producing district in the state of Arunachal Pradesh which accounted for 34.09 percent of total area of large cardamom cultivation and 33.80 percent of the total production of large cardamom in the state. In the study of value chain analysis of large-scale cardamom farming in the Anjaw district of Arunachal Pradesh, the method of triangulation has been used which tests the consistency of the findings arrived through different methods and control the intimidations or limitations of the multiple causes influencing our results, as shown in the Figure 1. Thus, this method validates, deepens and widens our understanding leading to multi-perspective meta-interpretations. (Kennedy, 2009^[2]). This analysis had been undertaken through interviews and FGDs with the stakeholders (farmers and *gaonbura*, indigenous financiers and middlemen, a staff of district agriculture and horticulture departments, experts from KVK, NABARD and members of Spice Board of India, etc.). The same is again validated through the personal observation made by the researcher.

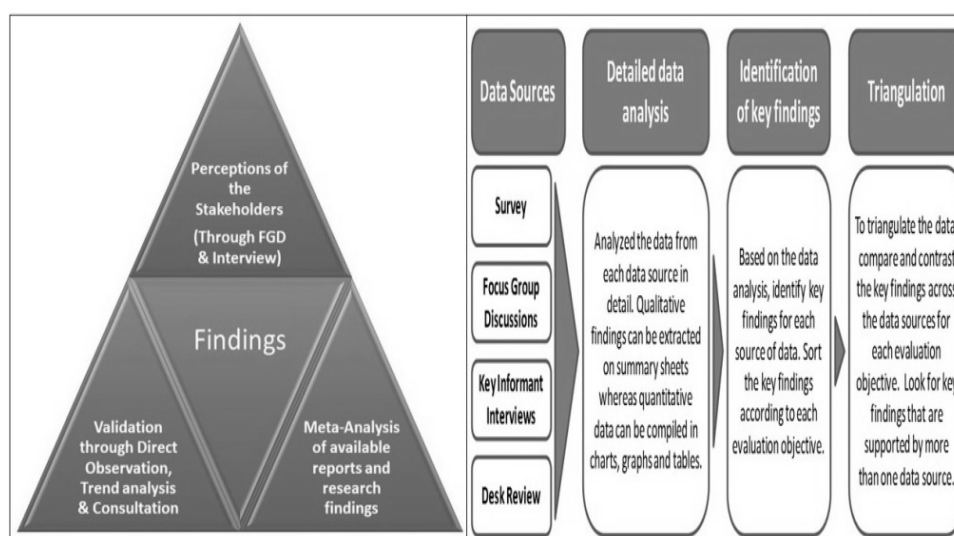
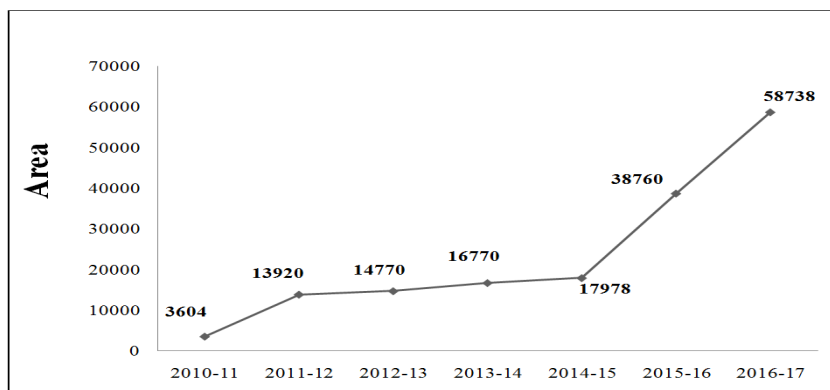


Figure 1: Structure of Triangulation for the Study of Value Chain Analysis

LARGE CARDAMOM CULTIVATION IN ARUNACHAL PRADESH

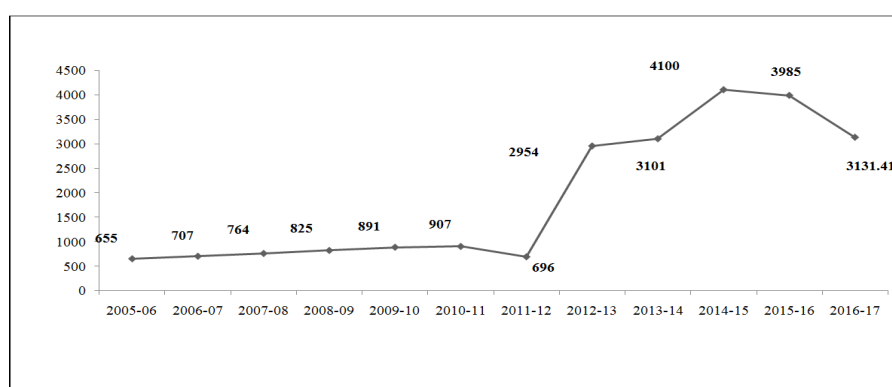
Growing of Large Cardamom is feasible at moist temperature having rich organic soil under 50% shades at an elevated range between 800 to 2,000 msl with an average precipitation of 3,000 to 3,500 mm/annum spread over 200 days, and the temperature ranges from 6 - 25°C. Thus, the spice is grown in the moderate belt of Himalayan range, particularly Sikkim for past many years. The existence of wild spices, locally known as '*Churumpa*', and the variability within the cultivated spices supports on its origin in Sikkim (Subha, 1984)^[3]. Later the cultivation has spread to northern Uttar Pradesh, northeast region (i.e., Arunachal Pradesh, Manipur, Nagaland, and Mizoram), Nepal and Bhutan. Large cardamom is a kind of most significant aromatic spice and a powerful flavoring agent of mild regions of North Eastern hilly areas of Arunachal Pradesh. In Arunachal Pradesh, it is cultivated in many parts i.e., East Siang, Lower Subansiri, Tirap, Changlang, Lohit, and Anjaw Districts. As of today, because of its increasing price and the highest rate of returns, this aromatic spice is produced at large scale in Goiliang, Chaglagam, Hawaii, Hayuliang and Manchal Circles of the district.



Source: Computed from Spice Board of India and Directorate of Horticulture GoAP.

Figure 2: Areas under Large Cardamom Plantation in Arunachal Pradesh

The total area under the large cardamom plantation in the State of Arunachal Pradesh was 3604 hectares during 2010-11 with an annual production of 655 tons with a yield rate of 1.56 tons per hectare which was increased to 58,738 hectares during 2016-17 with a production of 3131.41 tons with a yield rate of 0.53 tons per hectare. Astonishingly, during FY 2011-12, the area under cultivation has increased by 286.24% (i.e., from 3,604 hectares to 13,920 hectares). Subsequently, the area under cultivation remained steadily increasing every year and at the end of the year 2014-15, it reached 17,978 hectares. There was a huge margin of increase in the cultivation of large cardamom in the State from the 2014-15 onwards. The production during the year 2010-11 was 907 tonnes, but in next year the production has come down to 696 tonnes. Later in 2012-13, maximum production of the decade was observed with 324.43% growth. The production in the succeeding years recorded a stable growth i.e., 147 tonnes increase during 2012-13 to 2013-14 and 999 tonnes increase from 2013-14 to 2014-15. However, there was a slight decrease in production in 2015-16 and 2016-17 respectively due to fungal infection in some areas. The productivity per hectare during the year 2005-06 and up to 2010-11. However, the productivity has continuously declined from the financial year 2010-11 to 2012-13. Later, the productivity remained stable for a couple years i.e., 2013-14 to 2014-15. Finally, the productivity started gearing during 2016-17 with a positive growth.



Source: Computed from Spice Board of India and Directorate of Horticulture GoAP

Figure 3: Productions of Large Cardamom in Arunachal Pradesh (in Kg)

Anjaw district is the largest producer of Large cardamom in the state of Arunachal Pradesh which is accounted for 34.09 percent of total area with Large cardamom cultivation and 10.80 percent of the total production of Large cardamom in the state, as per 2014-15 statistics. In 2010-11, the district covered 55.49 percent of the total areas devoted to large cardamom cultivation in the state. The higher profit margin in this sector motivated other farmers in the state opted for this

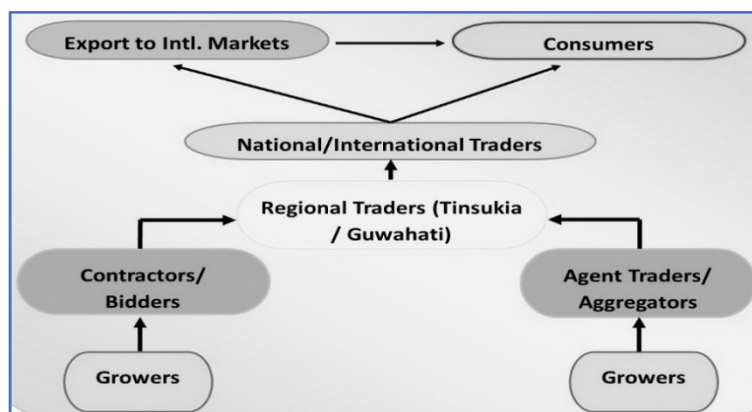
cash crop. The productivity of large cardamom per hector is highest in the state with a figure of 72.26 kg per hector during FY 2014-15. Large cardamom occupies a singular and prominent place in the sustainable livelihood of *Kman* and *Tawrā Mishmis* and often the most important area in earning a livelihood for the growers of Anjaw District of Arunachal Pradesh. Large Cardamom as an important arena for fastest growth in the process of economic development in unreached areas. After known the productivity and viable of the spice production in the Anjaw and some parts of the State, significant expansion of the cultivation practices in all the villages of the circles in the district.

SUPPLY CHAIN OF LARGE CARDAMOM MARKETING

The supply chain creates the core value of any trading and commercialization process. Supply chain management (SCM) is responsible for the creation value for the produces on sale. It deals with the system of producing an output, transferring hands till reach the place of sale, and fixing the value for it with a hope of people willing to pay for at the end. The accomplishment and persistence of a trade depend on the performance of the supply chain and its ability to create value. The business, which fails to create value, will potentially die. In contrast, value addition analysis along the supply chain is a powerful tool to analyze the competitive edge and to judge the satisfaction of each individual entity of the supply chain to increase the value for the product and a return for themselves. Thus, this analysis will indicate whether the players along the line for the large cardamom marketing are able to create a value for themselves for a sustainability of the trade and raise the potentiality (Munankami and Gautam, 1988^[4], Adhikari and Sigdel, 2015^[5]).

The market of large cardamom in the district is pretty unlikely because there is nothing sort of regulated/organized market for large cardamom exists. However, the existing unorganized market may better be known as immediate, itinerant and district dealers/ traders' types of markets. These markets are situated at Hayuliang and Hawaii at present. It is often observed that the farmers sell the produce at the immediate market which is largely unorganized and is held periodically in the markets.

Figure 4 shows the marketing channels of Large Cardamom in Anjaw District of Arunachal Pradesh. It is found that some farmers have sold their produce to the agent traders or itinerant traders who collect it either from their conventional storage at the house or from the field while harvesting. These traders are playing a vital role in the rural markets in the district. These traders also visit the district traders and regulated market on a scheduled date for holding transactions. The supply chain of large cardamom in above figure enlightened that it starts from growers and then go to the agent traders or aggregators or contractor or bidders, after that it is supplied to the regional traders at Tinsukia or Guwahati. Subsequently, these traders supply to the national level traders located at Kolkata, Delhi, Kerala, Mumbai, etc. and finally sold to consumers and rest are exported.



Source: Field Survey 2017

Figure 4: Supply Chain of Large Cardamom in Arunachal Pradesh

VALUE CHAIN ANALYSIS OF LARGE CARDAMOM IN ARUNACHAL PRADESH

The price build-up of large cardamom varies from place to place and year to year depending upon the demand and supply force of the produces. The value chain of large cardamom has been taken into consideration from two main dimensions viz., domestic and export value chains. The active actors in the domestic markets are farmers, aggregators or agent buyers, APMC, wholesalers, and retailers. On the other hand, the main players in the export chain are farmers, aggregators, exporters and foreign retailers (Table 1). The value addition of the large cardamom growers has the maximum percentage (68.61%) of the total cost of a kilogram of the produce whereas the aggregators received a sum of 40 per kg (5% of the market price), and then the wholesalers gained Rs. 126.71 (15.00% of the market price) and finally the retailers benefited with Rs. 175.18 (17.68%) per kg. In the export trade, the value addition for the farmer is 55.74%, for aggregators or agents it is 5.0% (i.e., Rs. 40), the exporter contributed 22.31% with a profit margin of Rs. 218.89 and finally, the foreign retailer benefited with a value addition of Rs. 325.00 for selling a kg of large cardamom.

Table 1: Value Chains of Large Cardamom
(Market Price as on August 2017)

Domestic Value Chain			
Chain Actors	Value (in Rs)	Price Mark- Up (Rs / Kg)	Value Added (in Rs & %)
Farmer / Producer	800	800	0
Aggregator	40	840	40 (5.00%)
APMC @ 0.258%	2.17	842.17	-
Transportation @ 0.151%	1.27	843.44	-
Wastage @ 0.15%	1.27	844.71	-
Wholesaler	126.71	971.42	131.42 (15.00%)
Marketing expenses @ 2%	19.43	990.85	-
Home Retailer	175.18	1166.00	194.61 (17.68%)
Market Price	Rs 1,166.00		-
Export Value Chain			
Same up to Wholesalers			
Marketing Expenditure @ 1%	9.71	981.13	-
FOB Agents	218.89	1200.00	228.60 (22.31%)
Marketing Expenditures @ 5%	60.00	1260.00	-
Foreign Retailer	175.00	1435.00	235.00 (13.89%)
Market Price	Rs 1,435.00		-

Source: Primary Data Collected in 2016-17 and Analysis Thereafter

Analysis of Marketing Margin

The figure 5.10 has been drawn based on the data collected through discussions with the stakeholders like buyers/aggregators, members of Agriculture Produce Marketing Committee (APMC), and staff members of Anjaw District Horticulture Department. The growers received only Rs 800 per kg whereas the actual price was Rs 1,166.00 at the point of sale. The value addition at aggregators level is Rs 40 at the rate of 5% and he has also the profit margin of 5%, whereas the value addition at wholesalers' level is Rs131.42 at the rate of 15.00% with a profit margin of 10.88% and finally, the retailer adds value of Rs 194.61 to the produces at a rate of 17.68% with a profit margin of 15.02%, in the domestic market of the large cardamom (Figure 5). With respect to the foreign market, the value addition and margin of profit at the level of aggregator and wholesaler is the same as the domestic market. The FOB agent responsible for exporting the large cardamom to the foreign market has added Rs 228.60 at 22.31% with a profit margin of 15.25% whereas the last player in the chain, the retailer adds Rs 235.00 at the rate of 13.89% with a profit margin of 12.20% (Figure 6). It is found from the analysis that all the value chain players add values to their marketing levels and earn returns too.



Figure 5: Value Addition or Margin Map of Large Cardamom (Domestic Trade)

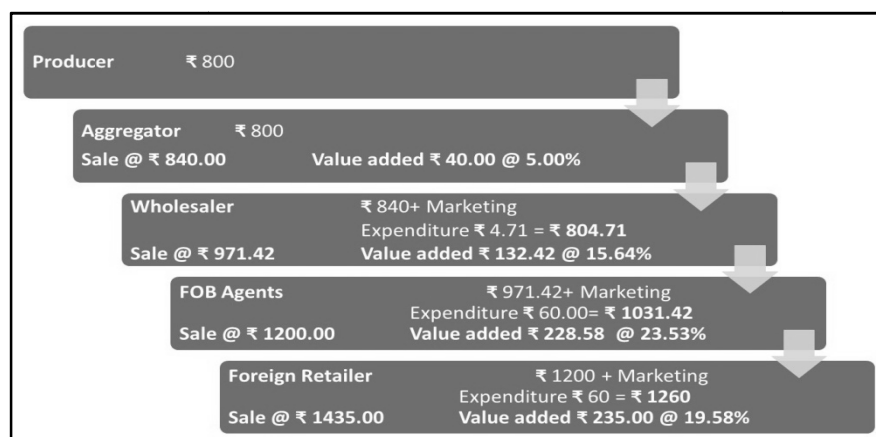


Figure 6: Value Addition or Margin Map of Large Cardamom (Foreign Trade)

CONCLUSIONS

The prospects and sustainability of large cardamom cultivation in the North-Eastern part of India assumes crucial importance as the region's economic and social progress which lies in the capabilities of the local growers and its available

resources in an efficient manner by adopting existing and new opportunities in the market. The success and growth in marketing of the produce lies with the satisfaction of the needs and requirements of all the players in the supply chain. The ongoing analysis concluded that all the supply chain actors have earned a sizable return ranging from 5% to 18% which adds the sustainability to the marketing efforts. Only the concern is the supply of the produces with appropriate qualities to make the stakeholders satisfied.

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